Workshop on International Good Practices of Sustainable Energy Technologies

Beirut Energy Forum
9-11 Sep 2015

Eng. Ziad Jebril Sabra

Advisor to the Minister

Ministry of Energy and Mineral Resources

JORDAN

Key Figures for Jordan Electricity Sector

- Total Installed Capacity: 4100 MW
- Peak Load: 3300 MW
- Per Capita Electricity Consumption: 2235 KWh
- Total Electricity Generation: 17261 GWh
- Total Electricity Consumption :14564 GWh

The Energy Sector in Jordan

- Challenges and opportunities -

- The country has a huge potential of:
  - Energy resources (oil shale, uranium).
  - Renewable energy utilization (wind, solar).
- High dependency on imported energy (97%)
- High cost of imported energy (18% of GDP 2014).
- High annual growth of primary energy demand (5%).
- High annual growth of electricity demand (7%).

For Renewables to have the right position within the global Energy Context:

- Stable Political and Regulatory Frameworks
- Adequate and Transparent Public Policies and Targets
- Clear Financial and Support Schemes (Tax regime)
- Well defined Infrastructure Provisions (Lands, Grid connections, etc.)

Jordan is at the right path

A target of 10% renewable energy input into the energy mix by 2020 is set in the National Energy Strategy, mainly aiming for about 1000MW of Wind and 600MW Solar.

Regulatory Framework

- The Renewable Energy and Energy Efficiency Law was passed as a permanent Law in April 2012.

- This law allows investors to identify and develop grid-connected electricity production projects through the so called unsolicited or direct proposal submission.

Regulatory Framework

- A well-founded reference price list (ceiling prices) for different Renewable technologies was set by the ERC .
- Net- Metering for small RE Systems (Roof Tops) with Fixed Purchase Prices for Excess Power,
- Tax Incentive regime, a By-Law was issued on Tax exemptions for RE and EE systems and Equipment.

Regulatory Framework

- Grid Expansion and Reinforcement Plans are ongoing (Green Corridor).

- The Jordan Renewable Energy and Energy Efficiency Fund is established, which aims to channel financial resources to that end.

Renewable Energy Development Schemes

About 1000 MW of Wind and Solar PV projects are currently under development in Jordan, 200MW operational by end of 2015.

The Government is currently engaged with a four-tracks approach to develop RE Projects as follows:

- Direct Proposals
- Competitive Bidding
- EPC Turn-Key
- Small Scale RE Schemes (Net Metering)

Projects Under Construction

Direct Proposals Scheme/ Round 1:

#	Type	Capacity	Location	Project(s) Information & Current Status
1	Wind	117 MW	Tafila	• BOO Project for Jordan Wind Company (JWPC). VESTAS machines. • Project Agreements along with the successful financial closure have been completed by the end of 2013 • operational by September 2015.
2	PV Solar	10 MW	Mafraq	• BOO for the local PV manufacturing company "Philadelphia-Solar". • Connected to distribution company. • operational by September 2015.

Projects Under Construction

Gulf Grants:

#	Type	Capacity	Location	Project(s) Information & Current Status
3	Wind	80 MW	Maan	• Funded through a Grant from the "Kuwait Fund For Arab Economic Development" • EPC project, awarded to the Spanish company "Elecnor", using GAMESA machines. • operational by March 2016.

Projects Under Construction

Spanish Grants:

#	Type	Capacity	Location	Project(s) Information & Current Status
4	PV Solar	2 MW	Azraq	• Debt Swap Grant. • EPC project, awarded to a Spanish company “Atersa” • operational since Med April 2015 .
5	PV Solar	3 MW	Azraq	• Soft loan. • EPC project with a Spanish company “Ennera • operational since Med April 2015.

Projects Under Development

Direct Proposals Scheme/ Round 1:

#	Type	Capacity	Location	Project(s) Information
1	Direct Proposal Round 1/ PV Solar	200 MW total	10 projects in Maan Area , 1 in Aqaba, 1 in Mafraq	• (12) PV solar proposals were received in March 2013 with total capacity of (200) MW. • PPAs signed in March 2014. • reached Financial Close in May 2015 • To be operational end 2015/2016.
2	Direct Proposal Round 1/ Wind	230 MW	3projects in the South, and 1 project in the North.	• Proposals have been submitted by 30/09/2014 , currently under final negotiations. • Operational in 2018

Projects Under Development

Direct Proposals Scheme/ Round 2:

#	Type	Capacity	Location	Project(s) Information & Current Status
1	PV Solar	200 MW total (50 each)	North, East and Middle Jordan	• (45) MOUs were signed with short listed PV bidders. • 34 Proposals were submitted by 10 February 2015. • Currently under final negotiations, Encouraging prices were proposed.
2	Wind	89 MW	Fujeij / Shobak	On 30 November 2014, KEPCO submit a direct proposal for this project , currently under final negotiations.

Projects Under Development

Gulf Grants:

#	Type	Capacity	Location	Project(s) Information & Current Status
1	PV Solar	65 – 100 MW	Al Quweira/ Aqaba	• EPC Project. • Funded by Abu Dhabi Fund • 15 Bidders were qualified • 7 proposals were received by the deadline (26 July 2015), currently under evaluation. • To be operational by 2017

Job Opportunities for Renewable Energy Projects Under Development

Energy Investment Projects and Opportunities	Investment Amount *(USD Million)*	Total Job Opportunities	Direct Jobs	Indirect Jobs	Governorate
1. Solar Energy: Financial Closure- Projects of First Round *(200 MW- 12 Projects in Ma'an, Mafraq, Aqaba)*	400	600	500	100	Ma'an, Mafraq, Aqaba
2. Solar Energy: Qwairah Project *(65-100 MW- 1 Project in Qwairah- Aqaba)*	150	120	100	20	Aqaba
3. Solar Energy: Project of Local Company Philadelphia- connected to distribution network *(10 MW- 1 Project in Mafraq)*	25	60	50	10	Mafraq

Energy Investment Projects and Opportunities	Investment Amount *(USD Million)*	Total Job Opportunities:	Direct Jobs	Indirect Jobs	Governorate
4. Solar Energy: North, Eastern and Middle Projects *(200 MW –Projects in North, Eastern & Middle Areas)*	400	600	500	100	all
5. Wind Energy: First Round Projects *(230 MW– 3 Projects in Rajef-Ma'an, Tafileh, Mazar- Irbid)*	400	600	500	100	Ma'an, Tafileh, Irbid
6. Wind Energy: Project of Kurian Company KEPCO *(89 MW– I Project in Fujaj-Shoubak)*	160	120	100	20	Ma'an
7. Wind Energy: Project of Spanish Company Elecnor *(80 MW- 1 Project in Ma'an)*	120	60	50	10	Ma'an
Total	**1655**	**2160**	**1800**	**360**	

Small Scale RE Projects

- Small scale consumers has been given the opportunity to generate their own electricity and sell the extra (if any) to the distribution utilities at a fixed tariff.
- This covers consumers from different sectors like residential, industrial, commercial, agricultural…etc.
- More than 4000 Applications received so far by DisCos.
- Currently 33 MW installed capacity (rooftop
- About 30 MW Approved applications.

Benefits from Renewable Energy Projects

- Establishing new project companies to run and operate RE projects.
- More employment in RE sector.
- Establishing new RE industries especially PV solar.
- Encouraging investors to maximize the local content in their projects (enjoy more incentives).
- More development in the less developed areas in Jordan in terms of socio-economic and employment aspects.
- More utilization of Private Land especially in the less development areas and Development Zones.
- Balanced risk allocation

Template Contractual Documents

(Transparent Process – Minimum Risk- Less cost)

- Instructions for developing RE projects (IRPP)
- Prequalification requirements
- Power Purchase Agreement (PPA)
- Land Lease Agreement
- Government Guarantee Agreement

Conclusion

- Jordan has laid down the necessary Policy and Regulatory frameworks for Renewable Energy, and is ready now to attract and receive commercial investments.
- Template contractual documents (mainly PPAs) and Instructions for developing RE projects do exist.
- Grid reinforcement (Green Corridor) is undergoing by NEPCO in order to install more RE Capacities.

Thank You